DETAILED ACTION

1. This Office Action is in response to an AMENDMENT entered on August 25, 2010 for the patent application 10/806,615 filed on March 22, 2004.

2. The Office Action of May 25, 2010 is fully incorporated into this Final Office Action by reference.

Status of Claims

3. Claims 1-30 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 5-9, 11-18, 20-26 and 29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kempisty (Pat. No.: US 6,714,264) in view of Choi (Pat. No.: US 6,598,233).

Regarding claim 1, Kempisty discloses **a method for displaying digital content comprising: using a first tuner to access a first transport stream associated with a first frequency** (Fig. 2, element 112, col. 3, ln. 49-65)**; displaying in a main picture area of a display screen, a first program channel associated with said first transport stream** (Fig. 2,

element 150, col. 4, ln. 12-27)**; using a second tuner during spare periods of said second tuner to access a second transport stream associated with a second frequency for a second program channel** (Fig. 2, element 212, col. 5, ln. 14-44)**, wherein said second transport stream comprises program information** (col. 3, ln. 30-38. The audio and video data is program information.)**; caching said program information into a memory buffer operable to reduce a delay in rendering time of said second program channel when said second program channel is selected** (Fig. 2, elements 116, 118, 216 and 218, col. 3, ln. 30-48)**; and upon selection of said second program channel, recalling said program information from said memory buffer to provide a fast channel change operation to said second program channel and display thereof by switching to said second tuner** (Fig. 2, col. 2, ln. 55-59, col. 4, ln. 66 – col. 6, ln. 23.)**.** Kempisty discloses buffering video and audio data, but does not explicitly disclose buffering information derived from a program association table (PAT), such as program identifiers (PIDs). However, in analogous art relating to decreasing the time necessary for channel change, Choi discloses **wherein said second transport stream comprises program information operable to identify program related information for subsequent decoding thereof** (col. 2, ln. 35-40, Fig. 4, element S17, col. 4, ln. 58-64)**, and wherein the program information comprises a program identifier and is operable to enable demultiplexing of said second program channel from said second transport stream** (col. 3, 28-34, Fig. 4, col. 4, ln. 34 – col. 5, ln. 9. The packet identifier is a program identifier. First of all, it is certainly true that packet identifiers of Choi are *operable* to enable demultiplexing of a second channel stream (see arguments below, in which Anderson is referenced in order to show how PIDs are used within the context of demultiplexing a transport stream). Second, the claim language does not

require the program information to actually enable demultiplexing; only that it must be operable to do so.); **and upon selection of said second program channel, recalling said program information from said memory buffer for decoding thereof operable to provide a fast channel change operation to said second program channel and display thereof by switching to said second tuner** (Figs. 3 and 4, col. 3, ln. 10-45, col. 5, ln. 10-27)**.** Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty to allow for the buffering of program information, including a program identifier, as taught by Choi. This would have produced predictable and desirable results, in that the amount of required buffer memory could be reduced by only having to store PIDs rather than actual program information comprising video and audio, while the channel change time would still be reduced.

Regarding claim 5, Kempisty discloses **further comprising: caching decoded I frames associated with said second program channel** (col. 1, ln. 19-41, Fig. 2, element 134. To display MPEG video, an I frame must be used.)**.**

Regarding claim 6, Kempisty discloses **further comprising: using said second tuner to scan through a plurality of frequencies over time to access a plurality of transport streams; decoding digital content associated with said plurality of transport streams resulting in decoded digital content; and caching a plurality of portions of said decoded digital content in a plurality of memory buffers associated therewith** (Fig. 1, col. 3, ln. 49-65, Figs. 2-4, elements 120, 220 and 320. This claim is rejected on the same grounds as claim 1.)**.**

Regarding claim 7, Kempisty discloses **wherein said first transport stream and said second transport stream are the same and wherein said first frequency and said second**

frequency are the same (col. 3, ln. 62-65. A multi-program bit-stream can have several minor channels.)**.**

Regarding claim 8, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 1 wherein said program information cached to said memory buffer is associated with a said second program channel,** and Kempisty further discloses **wherein said second program channel is predicted as a next channel that will be selected, wherein said prediction is based on previous channel selections** (col. 2, ln. 60 – col. 3, ln. 2. The system anticipates the next channel to be selected.)**.**

Claim 9 is similar to the method of claim 1, except that instead of two tuners associated with two frequencies, method 9 discloses three tuners associated with three frequencies. The method of claim 1 was rejected as unpatentable over Kempisty in view of Choi, and the method of claim 9 is rejected on the same grounds as claim 1. Kempisty discloses a system with three tuners (Fig. 3, elements 112, 212 and 312, Fig. 5), and thus the obvious combination of Kempisty and Choi includes a method with three tuners and three frequencies, as this would produce the predictable and desirable results of being able to anticipate a greater number of channels, thus improving the chances of a correct prediction.

Regarding claim 11, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 9 further comprising: switching to said third tuner, wherein said switching comprises: using said third tuner to access said third transport stream; displaying in said main picture area of said display screen, said third program channel associated with said third transport stream; using said first tuner to access a fourth transport stream associated with a fourth frequency; decoding third digital content from**

said fourth transport stream resulting in third decoded digital content comprising third program information operable to identify program related information for subsequent decoding thereof; and caching said third program information into said memory buffer operable to reduce a delay in rendering time of a fourth program channel when said fourth program channel is selected (Kempisty, Fig. 3, elements 112, 212 and 312, Fig. 5)**.** The obvious combination of Reitmeier and Kempisty includes a method with four tuners and four frequencies.

Regarding claim 12, Kempisty discloses **further comprising: caching decoded I-frames associated with each program channel** (col. 1, ln. 19-41, Fig. 2, element 134. To display MPEG video, an I frame must be used.)**.**

Regarding claim 13, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 9,** and Choi further discloses **wherein program information comprises table information associated with a said third transport stream associated therewith** (col. 2, ln. 35-40, Fig. 4, element S17, col. 4, ln. 58-64)**.** This limitation was anticipated in the rejection of claim 1. Therefore, this claim is rejected on the same grounds as claim 1.

Regarding claim 14, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 9 further comprising: using said third tuner to scan through a plurality of frequencies over time to access a plurality of transport streams; decoding fourth digital content associated said plurality of transport streams resulting in a fourth decoded digital content; and caching a plurality of portions of said fourth decoded digital content to said memory buffer** (Kempisty, Fig. 3, elements 112, 212 and 312, Fig. 5)**.** It would be desirable to use as many tuners as were available, so as to maximize the number of buffered channels and

increase the likelihood of decreased channel change time. Therefore, this claim is rejected on the same grounds as claim 9.

Regarding claim 15, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 9 wherein said second program information cached to said memory buffer is associated with a said third program channel,** and Kempisty further discloses **wherein said third program channel is a predicted as potentially a next channel that will be selected, wherein said prediction is based on previous channel selections** (col. 2, ln. 60 – col. 3, ln. 2. The system anticipates the next channel to be selected.)**.**

Regarding claim 16, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 15 wherein said first program information cached to said memory buffer is associated with a fourth program channel,** and Kempisty further discloses **wherein said fourth program channel is a predicted as potentially a next channel that will be selected, wherein said prediction is based on previous channel selections** (col. 2, ln. 60 – col. 3, ln. 2. The system anticipates the next channel to be selected.)**.**

Regarding claim 17, Kempisty discloses **a method for displaying digital content comprising: using a first tuner to access a first transport stream associated with a first frequency** (Fig. 2, element 112, col. 3, ln. 49-65)**; displaying in a main picture area of a display screen, a first program channel associated with said first transport stream** (Fig. 2, element 150, col. 4, ln. 12-27)**; using a second tuner to access a second transport stream associated with a second frequency** (Fig. 2, element 212, col. 5, ln. 14-44)**; decoding said second transport stream comprising program information associated with a second program channel** (col. 3, ln. 30-38. The audio and video data is program information.)**, caching**

said program information into a memory buffer operable to reduce a delay in rendering time of said second program channel when said second program channel is selected (Fig. 2, elements 116, 118, 216 and 218, col. 3, ln. 30-48)**, and upon selection of said second program channel, recalling said program information from said memory buffer for decoding thereof operable to provide a fast channel change operation to said second program channel** (Fig. 2, col. 2, ln. 55-59, col. 4, ln. 66 – col. 6, ln. 23.)**.** Kempisty discloses buffering video and audio data, but does not explicitly disclose buffering information derived from a program association table (PAT), such as program identifiers (PIDs). However, in analogous art relating to decreasing the time necessary for channel change, Choi discloses **decoding said second transport stream comprising table information associated with a second program channel, wherein said table information is operable to identify program related information for subsequent decoding thereof** (col. 2, ln. 35-40, Fig. 4, element S17, col. 4, ln. 58-64)**, and wherein the table information comprises a program identifier and is operable to enable demultiplexing of said second program channel from said second transport stream** (col. 3, 28-34, Fig. 4, col. 4, ln. 34 – col. 5, ln. 9. The packet identifier is a program identifier. First of all, it is certainly true that packet identifiers of Choi are *operable* to enable demultiplexing of a second channel stream (see arguments below, in which Anderson is referenced in order to show how PIDs are used within the context of demultiplexing a transport stream). Second, the claim language does not require the program information to actually enable demultiplexing; only that it must be operable to do so.)**; and upon selection of said second program channel, recalling said table information from said memory buffer for decoding thereof operable to provide a fast channel change operation to said second program channel** (Figs. 3 and 4, col. 3, ln. 10-45,

col. 5, ln. 10-27). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty to allow for the buffering of program information as taught by Choi. This would have produced predictable and desirable results, in that the amount of required buffer memory could be reduced by only having to store PIDs rather than actual program information comprising video and audio, while the channel change time would still be reduced.

Regarding claim 18, Kempisty discloses **further comprising: decoding I-frames associated with programs of said second transport stream; caching said I-frames to said memory buffer; and upon said selection of said second program channel recalling cached I-frames for use in said fast channel change operation to said second program channel** (col. 1, ln. 19-41, Fig. 2, element 134. To display MPEG video, an I frame must be used.).

Regarding claim 20, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 17 further comprising: using said second tuner to also scan through a plurality of frequencies over time to access a plurality of transport streams; decoding said plurality of transport streams to retrieve a plurality of table informations from said plurality of transport streams; and caching a said plurality of table informations to said memory buffer** (Kempisty, Fig. 1, col. 3, ln. 49-65). This claim is rejected on the same grounds as claim 17.

Regarding claim 21, Kempisty discloses **wherein said second program channel is a predicted as a next channel that will be selected, wherein said prediction is based on prior channel selections** (col. 2, ln. 60 – col. 3, ln. 2. The system anticipates the next channel to be selected.).

Regarding claim 22, Kempisty discloses **wherein said first transport stream and said second transport stream are the same** (col. 3, ln. 62-65. A multi-program bit-stream can have several minor channels.)**.**

Regarding claim 23, Kempisty discloses **a method for displaying digital content comprising: using a first tuner and a first decoder to access and decode a first transport stream associated with a first frequency** (Fig. 2, elements 112 and 114, col. 3, ln. 49-65)**, wherein said first transport stream comprises first program information** (col. 3, ln. 30-38. The audio and video data is program information.)**; displaying in a main picture area of a display screen, a first program channel associated with said first transport stream** (Fig. 2, element 150, col. 4, ln. 12-27)**; using a second decoder to decode a second program information** (Fig. 2, elements 212 and 214, col. 5, ln. 14-44, col. 3, ln. 30-38. The audio and video data is program information.)**; caching said second program information into a memory buffer operable to reduce a delay in rendering time of said second program channel associated with said second program channel when said second program channel is selected** (Fig. 2, elements 116, 118, 216 and 218, col. 3, ln. 30-48)**, and upon selection of said second program channel, recalling said second program information from said memory buffer to provide a fast channel change operation to said second program channel and display thereof** (Fig. 2, col. 2, ln. 55-59, col. 4, ln. 66 – col. 6, ln. 23.)**.** Kempisty discloses buffering video and audio data, but does not explicitly disclose buffering information derived from a program association table (PAT), such as program identifiers (PIDs). However, in analogous art relating to decreasing the time necessary for channel change, Choi discloses **using a second decoder to decode a second program information operable to identify program**

related information for subsequent decoding thereof (col. 2, ln. 35-40, Fig. 4, element S17, col. 4, ln. 58-64)**, and wherein the second program information comprises a program identifier and is operable to enable demultiplexing of a second program channel from said second transport stream** (col. 3, 28-34, Fig. 4, col. 4, ln. 34 – col. 5, ln. 9. The packet identifier is a program identifier. First of all, it is certainly true that packet identifiers of Choi are *operable* to enable demultiplexing of a second channel stream (see arguments below, in which Anderson is referenced in order to show how PIDs are used within the context of demultiplexing a transport stream). Second, the claim language does not require the program information to actually enable demultiplexing; only that it must be operable to do so.)**; caching said second program information into a memory buffer operable to reduce a delay in rendering time of a second program channel associated with said second program channel when said second program channel is selected, and upon selection of said second program channel, recalling said second program information from said memory buffer for decoding thereof to provide a fast channel change operation to said second program channel and display thereof** (Figs. 3 and 4, col. 3, ln. 10-45, col. 5, ln. 10-27)**.** Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty to allow for the buffering of program information as taught by Choi. This would have produced predictable and desirable results, in that the amount of required buffer memory could be reduced by only having to store PIDs rather than actual program information comprising video and audio, while the channel change time would still be reduced.

Regarding claim 24, Kempisty discloses **wherein said first transport stream comprises said second program** (col. 3, ln. 62-65. A multi-program bit-stream can have several minor channels.).

Regarding claim 25, Kempisty discloses **wherein said second decoder is a spare decoder and wherein said second program channel is a predicted as a next program channel that will be selected** (col. 2, ln. 60 – col. 3, ln. 2. The second decoder can be seen as a spare decoder since it is not supplying the display. The system anticipates the next channel to be selected.).

Regarding claim 26, Kempisty discloses **wherein said second program information is associated with a second transport steam and wherein said method further comprises: using a second tuner to access said second transport stream** (Fig. 2, element 212, col. 5, ln. 14-44).

Regarding claim 29, Kempisty discloses **wherein said second program channel is a predicted as a next program channel that will be selected, and wherein said method further comprises: using a third tuner and a third decoder to access and decode a third program information associated with a third program channel** (Fig. 3, elements 112, 212, 312 and 314, Fig. 5), **wherein said third program channel is predicted as a next program channel that will be selected** (col. 2, ln. 60 – col. 3, ln. 2. The system anticipates the next channel to be selected.).

Regarding claim 30, Kempisty discloses **wherein said program information comprises packets transmitted via said second transport stream** (col. 1, ln. 19-59).

5. Claims 2-4, 10, 19, 27 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kempisty (Pat. No.: US 6,714,264) in view of Choi (Pat. No.: US 6,598,233), and further in view of Reitmeier (Pat. No.: US 6,115,080).

Regarding claim 2, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 1,** but do not explicitly disclose **wherein said second tuner is normally dedicated to picture-in-picture rendering on said display screen.** However, in analogous art relating to decreasing the time necessary for channel change, Reitmeier discloses that the circuitry (or software) used to provide rapid channel acquisition functions are very similar to the circuitry (or software) used to implement a picture-in-picture (PIP) processor (column 4, lines 29-41, Fig. 1, element V2, column 5, lines 23-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty and Choi to allow for the PIP functionality of Reitmeier. This would have produced predictable and desirable results, in that the user could have access to increased features (PIP) with minimal additional circuitry or software required.

Regarding claim 3, the combined teaching of Kempisty, Choi and Reitmeier discloses **a method as described in Claim 2,** and Choi further discloses **wherein said program information comprises table information associated with said second transport stream** (col. 2, ln. 35-40, Fig. 4, element S17, col. 4, ln. 58-64)**.** This limitation was anticipated in the rejection of claim 1. Therefore, this claim is rejected on the same grounds as claim 1.

Regarding claim 4, the combined teaching of Kempisty, Choi and Reitmeier discloses **a method as described in Claim 3,** and Choi further discloses **wherein said table information is**

derived from a program association table that is encoded in said second transport stream (col. 2, ln. 35-40, Fig. 4, element S17, col. 4, ln. 58-64)**.** This limitation was anticipated in the rejection of claim 1. Therefore, this claim is rejected on the same grounds as claim 1.

Regarding claim 10, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 9,** but do not explicitly disclose **wherein said second tuner is normally dedicated for picture-in-picture rendering on said display screen.** However, in analogous art relating to decreasing the time necessary for channel change, Reitmeier discloses that the circuitry (or software) used to provide rapid channel acquisition functions are very similar to the circuitry (or software) used to implement a picture-in-picture (PIP) processor (column 4, lines 29-41, Fig. 1, element V2, column 5, lines 23-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty and Choi to allow for the PIP functionality of Reitmeier. This would have produced predictable and desirable results, in that the user could have access to increased features (PIP) with minimal additional circuitry or software required.

Regarding claim 19, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 17,** but do not explicitly disclose **wherein said second tuner is normally dedicated to picture-in-picture rendering on said display screen.** However, in analogous art relating to decreasing the time necessary for channel change, Reitmeier discloses that the circuitry (or software) used to provide rapid channel acquisition functions are very similar to the circuitry (or software) used to implement a picture-in-picture (PIP) processor (column 4, lines 29-41, Fig. 1, element V2, column 5, lines 23-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty and Choi to allow for

the PIP functionality of Reitmeier. This would have produced predictable and desirable results, in that the user could have access to increased features (PIP) with minimal additional circuitry or software required.

Regarding claim 27, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 23 further comprising: using a second tuner and a third decoder to access and decode a second transport stream associated with a second frequency** (Fig. 3, elements 112, 212, 312 and 314, Fig. 5)**;** but do not explicitly disclose **displaying in a picture-in-picture area of a display screen, a program associated with said second transport stream.** However, in analogous art relating to decreasing the time necessary for channel change, Reitmeier discloses that the circuitry (or software) used to provide rapid channel acquisition functions are very similar to the circuitry (or software) used to implement a picture-in-picture (PIP) processor (column 4, lines 29-41, Fig. 1, element V2, column 5, lines 23-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty and Choi to allow for the PIP functionality of Reitmeier. This would have produced predictable and desirable results, in that the user could have access to increased features (PIP) with minimal additional circuitry or software required.

Regarding claim 28, the combined teaching of Kempisty and Choi discloses **a method as described in Claim 26 further comprising: using a third tuner and a third decoder to access and decode a third transport stream associated with a third frequency** (Fig. 3, elements 112, 212, 312 and 314, Fig. 5)**;** but do not explicitly disclose **displaying in a picture-in-picture area of a display screen, a program associated with said third transport stream.** However, in analogous art relating to decreasing the time necessary for channel change, Reitmeier discloses

that the circuitry (or software) used to provide rapid channel acquisition functions are very similar to the circuitry (or software) used to implement a picture-in-picture (PIP) processor (column 4, lines 29-41, Fig. 1, element V2, column 5, lines 23-43). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kempisty and Choi to allow for the PIP functionality of Reitmeier. This would have produced predictable and desirable results, in that the user could have access to increased features (PIP) with minimal additional circuitry or software required.

Response to Arguments

6. Applicant's arguments filed August 25, 2010 have been fully considered but they are not persuasive.

Regarding Applicant's argument on page 13 concerning claim 1:

A telephonic interview was conducted on August 16, 2010 with Examiner Taylor and the Applicants' undersigned representative. Applicants' undersigned representative discussed amendments for independent Claim 1. Examiner Taylor agreed that the claim amendments filed herewith appear to overcome the rejections of record.

Examiner's Response:

Examiner did allow that the proposed amendment appeared to overcome the prior art of record at the time of the interview. However, after further consideration and research into the workings of packet identifiers in the context of transport streams, Examiner found that the existing prior art of record did in fact teach the amended claim language.

The Anderson publication (Pub. No.: US 2003/0206605), which is not used to reject any of the claims but rather is referenced to provide a basis for how Examiner is interpreting the Kempisty and Choi references, discloses the following: In paragraphs [0018] and [0019]. Anderson discloses that "a transport stream (TS) may contain one or more independent, individual programs, such as individual television channels or television programs, where each individual program can have its own time base, and each stream making up an individual program has its own PID," and that "the architecture of the transport stream (TS) packets under the MPEG-2 specifications is such that the following operations are enabled: (1) demultiplexing and retrieving elementary stream (ES) data from one program within the transport stream." This shows that the packet identifiers of Choi are operable to enable the demultiplexing of a second program channel, as claimed above, in the context of the teaching of the Kempisty reference. Thus, the combined teaching of Kempisty and Choi discloses the method of claim 1.

Conclusion

7. Claims 1-30 are rejected.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOSHUA TAYLOR whose telephone number is (571) 270-3755. The examiner can normally be reached on 8am-5pm, M-F, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hirl can be reached on (571) 272-3685. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Josh Taylor/
Examiner, Art Unit 2426

/Joseph P. Hirl/
Supervisory Patent Examiner, Art Unit 2426
November 5, 2010